National Park Service
U.S. Department of the Interior

HFC onMEDIA

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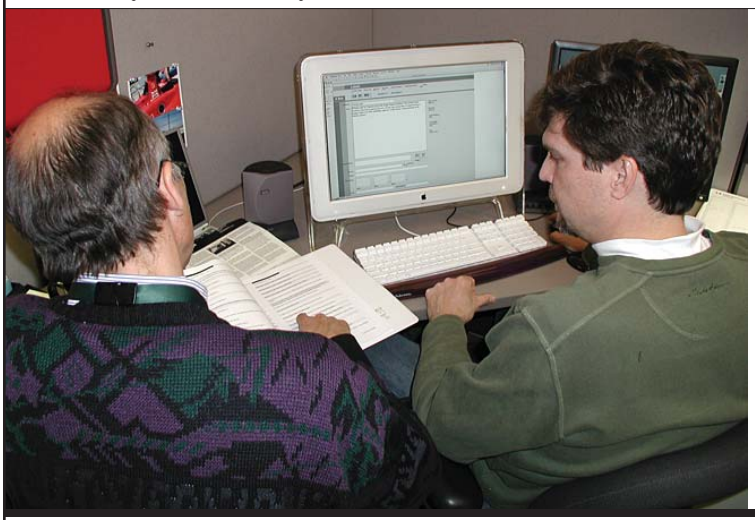


HFC exhibit planner Neil Mackay (left) and exhibit designer Chris Dearing review details of a new exhibit plan for Pea Ridge National Military Park in the Museum Exhibit Planner. This issue of ***HFC onMedia*** *looks at some of the software tools Harpers Ferry Center has created to help parks plan and design interpretive media products. See related articles beginning on Page 6. (NPS Photo by David T. Gilbert)*

In This Issue

From HFC's Director

Staff here at Harpers Ferry Center are always looking for ways to improve the quality and consistency of our media work. Sometimes this process leads to the development of new software tools or templates that not only improve our own workflow, but likely meet the needs of media planners and designers across the National Park Service. Sharing these tools is just one way HFC strives to "develop media skills in park and regional staff"—an important component of the *Harpers Ferry Center Service Plan*.

In this issue of *HFC onMedia*, we take a look at three software tools in particular—the Museum Exhibit Planner, Map Starter Files, and Wayside Exhibit Grids—that are now available to park staff, contractors, and our many partners in the interpretive media business. While these three applications are used daily by our own media planners, designers, and cartographers, there's a good chance many of you will find them useful as well. All three software tools are available on our website at *www.nps.gov/hfc*.

If you've developed your own electronic processes or software solutions for a particular interpretive media challenge, let us know. Just use the comment form under the "Contact Us" tab on our website.

—Don Kodak

New Map for Dry Tortugas

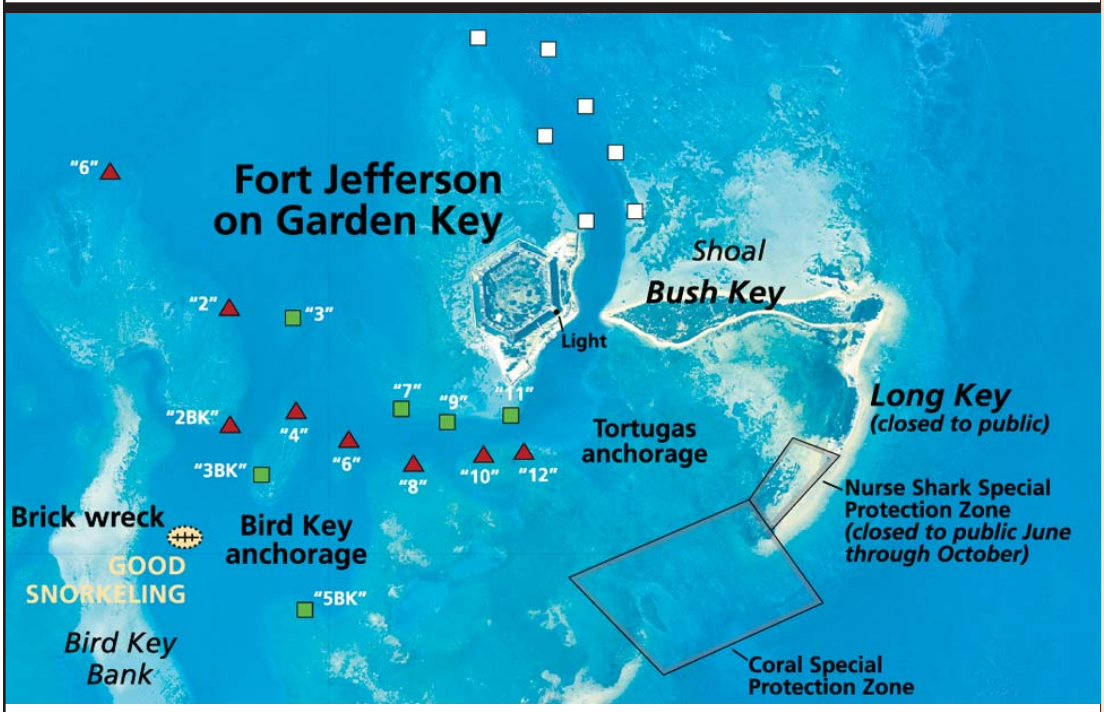
Map Helps Park Interpret Coral Reefs and Manage New Research Natural Area

Harpers Ferry Center's Publications Group recently produced a new Unigrid brochure map for Dry Tortugas National Park, Florida. The detail of the new map's enlarged inset (*below*) shows Fort Jefferson on Garden Key, and Bush and Long keys. The map mosaics together 17 NOAA aerial photographs with no visible seams. NPS IDIQ contractor International Mapping did the mosaic work, directed by HFC cartographer Tom Patterson, who served as COR.

Aerial photograph-based maps can show bottom detail—coral reefs, sand, even shipwrecks, etc.—in shallow water that conventional maps do not show. Those features loom large in the park's interpretation programs. The park also needed the new map to show precise bounds—and restrictions on access and use—for its recently designated Research Natural Area, and for conservation areas next to the park. (The squares and triangles depict navigational buoys.)

The map also economically solves a persistent problem faced by HFC and the park in updating and reprinting the brochure. Vagaries of winds and currents can cause a sand bar to form—or to disappear—in the channel between Garden Key and Long Key. The sand bar, which a recent storm obliterated, now nestles invisibly on a layer in the Adobe Photoshop software program that can be turned on or off as brochure updates demand.

Buck Island Reef National Monument in the U.S. Virgin Islands also uses an HFC-produced aerial-photograph based map to show its coral reefs.



This detail of the new map's enlarged inset shows Fort Jefferson on Garden Key, and Bush and Long keys. The map mosaics together 17 NOAA aerial photographs with no visible seams.

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Send questions and comments to David T. Gilbert either by email at *david_t_gilbert@nps.gov* or call 304 535 6102.

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2D vs. 3D Trailhead Maps

Evaluating the Effectiveness of Two Distinct Map Types

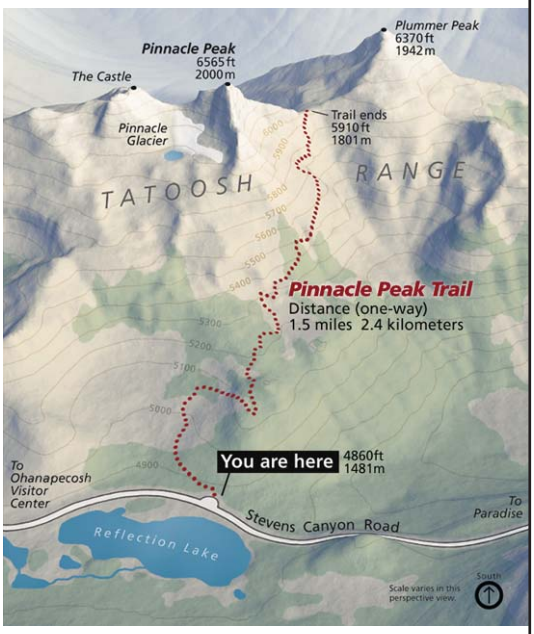
Until recently, the cartographic profession has regarded three-dimensional (3D) maps as an exotic niche product compared to the far more ubiquitous and familiar two-dimensional (2D) maps. For many cartographers, the pictorial appearance and variable scale of 3D maps has seemed imprecise and non-scientific. However, now that computers have made 3D maps easier to produce and thus more common, the mapmaking community is reevaluating 3D maps as an acceptable means for giving a quick and concise overview of the topography and environment of an area.

With the rise of 3D mapping—for example, Google Earth is now a widely popular computer application for viewing 3D landscapes—many cartographers have assumed that inexperienced map-readers can more easily relate to the information depicted on 3D maps because they closely mimic what people see around them. But is the added cost and effort required to produce a 3D map (*typically 200% more than the cost to produce a traditional 2D map*) warranted?

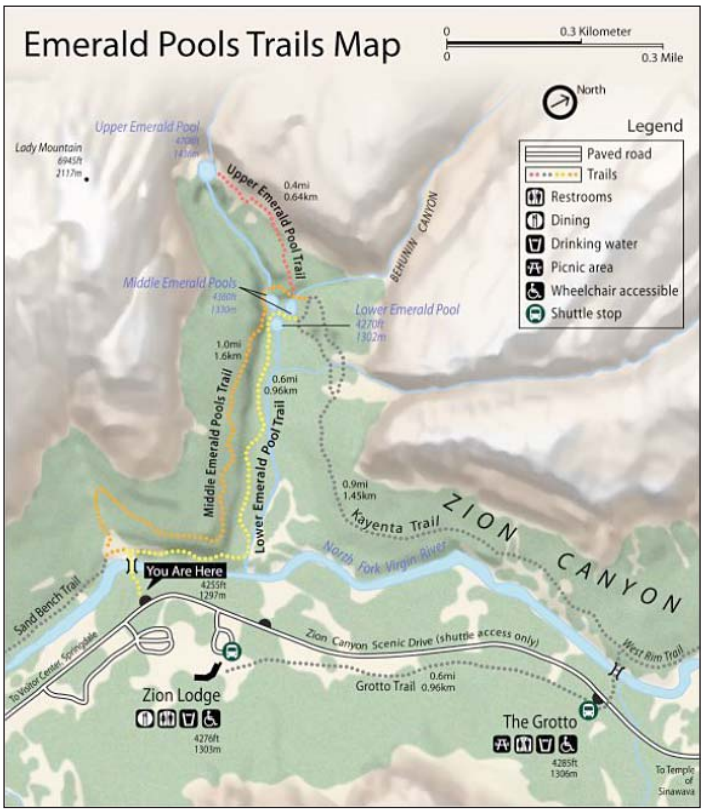
Harpers Ferry Center cartographer Tom Patterson began asking this question several years ago. Rather than making general assumptions about when to use 2D trail maps or 3D trail maps, Patterson recognized the need for a formal study. In 2004, he made a presentation at the Mountain Cartography Workshop during the annual conference of the International Cartographic Association at Vall De Nuria, Spain. Patterson outlined the framework for a user study to benefit the U.S. National Park Service, and asked if any professor with graduate students would consider the project.

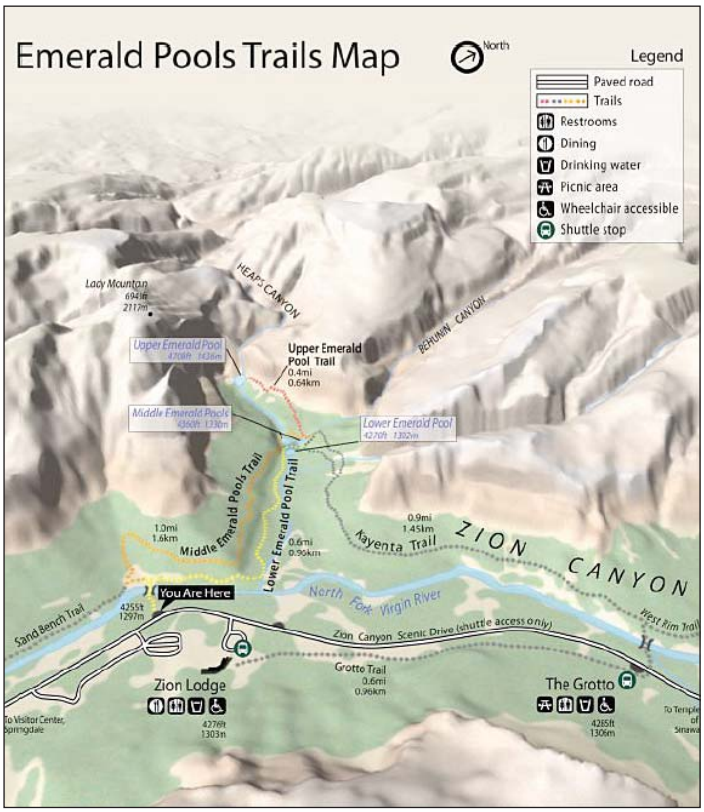
Six month later, Dr. Karel Kriz at the University of Vienna contacted Patterson. He did indeed have a graduate student: David Schobesberger, a masters-degree candidate in the university's Department of Geography and Regional Research. With Patterson serving as an informal advisor, Schobesberger wrote a thesis proposal for "Evaluating the Effectiveness of 2D vs. 3D Trailhead Maps." HFC's social science coordinator Paula Beale put him in touch with the NPS Social Science Program, and reviewed his application for OMB (Office of Management and Budget) approval to conduct visitor research. The NPS Office of International Affairs was also instrumental in helping Schobesberger obtain the necessary visas and VIP (Volunteer in Parks) credentials.

Choosing a park in which to conduct the study was the final piece of the puzzle. Patterson recommended Zion National Park for several reasons: the park has a shuttle bus system (Schobesberger would not have a car), is close to a town where food and supplies are readily available, and has lots of hikers—running the gamut from beginner to experienced—whom Schobesberger could interview. Tom Haraden, the park's chief of visitor services, has worked with Harpers Ferry Center on a variety of interpretive media projects. He was delighted to assist Schobesberger and help oversee his work.



3D map of the Pinnacle Peak Trail at Mount Rainier National Park, Washington.





2D (left) and 3D versions of the Emerald Pools Trails Map used for David Schobesberger's trailhead map study at Zion National Park, Utah.

Schobesberger's study focused exclusively on 2D vs. 3D hiking maps posted at two Zion National Park trailheads—the Emerald Pools trails and the Observation Point Trail. For reference, 2D maps are conventional maps that depict the landscape from a point directly overhead. Most maps found on existing national park trailheads and in official national park brochures are 2D maps. These maps accurately portray the spatial relationships (x and y dimensions) of a landscape, but are intrinsically ill-suited for depicting the height of terrain (z dimension). 2D maps employ a variety of abstract methods to portray terrain, such as contour lines, spot elevations, hypsometric (elevation) tints, and shaded relief.

3D maps, sometimes called bird's-eye views or panoramas, depict the landscape from an oblique angle (*see the two maps above for a comparison of 2D and 3D maps*). The landscapes represented on 3D maps appear similar to the views people observe from high places such as mountain tops, and contain perspective that displays distant (background) areas with diminished scale. Regardless of whether a map is two-dimensional or three-dimensional, its goal at a trailhead is to give hikers accurate and relevant information without burdening them with unnecessary detail.

For three weeks in September 2006, Schobesberger conducted his study. He used two approaches for collecting data: passive monitoring of park visitors as they read one of two distinct trailhead maps, and personal interviews. Altogether, Schobesberger made 340 observations of hikers at trailheads and completed 185 personal interviews using a prescribed questionnaire. The response rate for the questionnaire was approximately 90 percent.

Data collection took place on two trails, one popular with novice hikers (Emerald Pool), and the other more strenuous and frequented by experienced hikers (Observation Point). For both trailheads Schobesberger prepared 2D and 3D

2D maps are conventional maps that depict the landscape from a point directly overhead. 3D maps, sometimes called bird's-eye views or panoramas, depict the landscape from an oblique angle.

maps, each one formatted consistently using the same colors and typography—leaving dimensionality as the only obvious variable. Data collection took place on alternating days, one day with the 2D map posted at the trailhead, the next day with the 3D map posted at the exact same location.

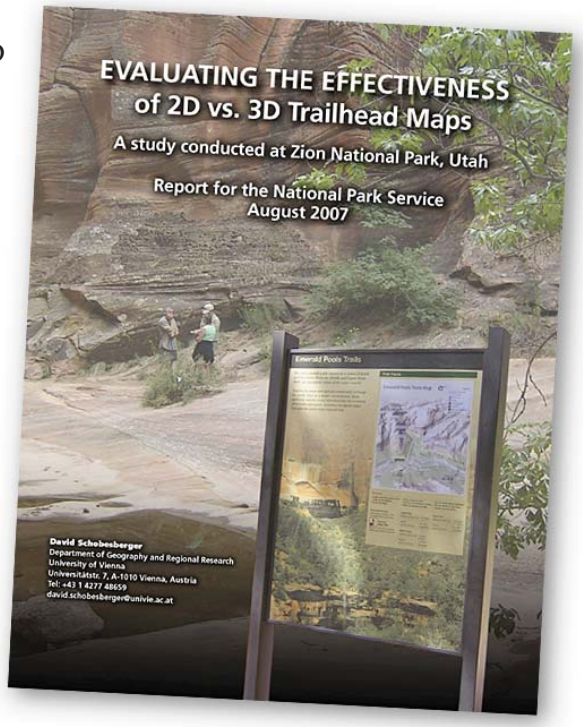
The study resulted in several key findings:

- 3D maps enable hikers to more accurately identify their location on the landscape compared to 2D maps, especially for older people (over 60 years of age) and women.
- Hikers preferred 3D trailhead maps (53%) over 2D maps (43%).
- Older respondents, men, and native English speakers generally prefer 2D maps.
- Younger respondents, women, and non-native English speakers generally prefer 3D maps.
- On the Emerald Pools trails, less experienced hikers rated the 2D map easier to read.
- On the Observation Point Trail, more experienced hikers rated the 3D map easier to read.
- Readers of 3D maps had a better understanding of distances, topography, and environment, while readers of 2D maps could better recall place names.
- Respondents on both trails generally agreed that 3D maps depict reality better.
- 3D maps attract more trailhead readers than do 2D maps, and are viewed on average for a few seconds longer than 2D maps.

To the basic question of which map format—2D or 3D—is preferable, the survey results are not conclusive. According to Schobesberger's study, it depends on a variety of factors. Conventional wisdom among the cartographic profession has been that inexperienced map readers would benefit the most from 3D maps. But the opposite proved to be true—less experienced hikers on the Emerald Pools trails rated the 2D maps easier to read. This was especially true of older less experienced hikers. Younger, more experienced hikers, on the other hand, showed a preference for 3D maps.

Schobesberger's study recommends that the type of trail and the kinds of hikers it is likely to attract must be considered when deciding between 2D and 3D maps. 3D maps were found best suited to trails with considerable elevation gain frequented by younger individuals, non-native English speakers, women, and those who hike frequently. By comparison, 2D maps were found better suited for flatter, less strenuous trails frequented by older individuals, men, native English speakers, and people who hike infrequently.

A copy of Schobesberger complete report, *Evaluating the Effectiveness of 2D vs. 3D Trailhead Maps*, is available on the Harpers Ferry Center website at *www.nps.gov/hfc/carto/zion_map_study.pdf* (50 pages, 6.72 MB).



Former Director Stanton Donates Uniform

Former National Park Service Director Robert Stanton visited Harpers Ferry Center's Willow Springs facility on Tuesday, November 20, 2007. Stanton came to donate his NPS uniform and accessories to the National Park Service History Collection. The collection documents the evolutionary history and material culture of the National Park Service, forming the most complete record of NPS history available. The ranger uniform, its insignia and accessories are one of the history collections' many components critical to the complete understanding and portrayal of the NPS and its role in the history of the United States (*see "The NPS Uniform Collection," March/April 2006 HFC onMedia, page 6*).

Stanton served as Director of the National Park Service from 1997-2001, and held positions as seasonal ranger, ranger, superintendent, deputy regional director, assistant director, and regional director of the National Capital Region. During his tenure as Director, Stanton took particular interest in increasing the diversity of NPS staff and public programs to better serve minority populations.

Robert Stanton (left) and HFC Director Don Kodak signed donation papers in a ceremony at HFC's Willow Springs facility in Charles Town, West Virginia. (NPS Photo by Darryl Herring)

Museum Exhibit Planner

Professional Content Management for Exhibition Media

In 1993, Harpers Ferry Center exhibit planner David Guiney created the *Museum Exhibit Planner*. Guiney developed the program to help exhibit teams manage exhibit content elements and keep track of project goals, quality factors, and project requirements related to content. The program, which runs under FileMaker Pro database software, has evolved to meet the changing needs of exhibit professionals.

Now in version 20, the *Museum Exhibit Planner* has become an essential tool for organizing, tracking, and managing all media elements that will be featured in a park or partner exhibition. According to HFC exhibit planner Neil Mackay, the *Museum Exhibit Planner* is "the foundational program that ensures that exhibit planning is comprehensive, communicative, and organized so that teams of media creators, subject matter experts, a variety of contractors—and, most importantly, park clients—can successfully understand and manage the myriad details of a museum project."

The program assists exhibit specialists in assembling exhibit elements such as labels, images, graphic layouts, artifacts, and audiovisual programs. Customized work screens speed such tasks as writing and editing labels, selecting graphics, ordering photo reproductions, and tracking artifacts. Drop-down menus provide standardized field entries. Printing modules are designed to output professional looking reports and schedules which are incorporated into final exhibit plan packages. Exhibit planners can even store project files and memos, and retrieve thumbnail images of exhibit graphics, display objects, and equipment. Version 20 also includes fields for tracking programmatic accessibility features. The efficiency gained in managing all these details really gives the exhibit planning team more time for creative work.

Because FileMaker Pro runs on both Windows PC and MacOS computers, the *Museum Exhibit Planner* has been indispensible in managing projects where exhibit planners, designers, and fabricators are using different operating platforms. This commonly happens when park staff, HFC staff, and contractors are all involved in the same exhibit project.

Although it is one of the most efficient tools for NPS exhibit planning, the *Museum Exhibit Planner* is used by a limited number of media professionals within the National Park Service. The Service has adopted enterprise application software standards, and FileMaker Pro, like other specialty applications, is not part of the Service-wide suite of software designated for use by NPS staff as a whole.

A free copy of the *Museum Exhibit Planner* application file is available for download from the Harpers Ferry Center website at *www.nps.gov/hfc/products/imi/imi-ex-plan.htm*.

David Guiney Receives Sequoia Award

Congratulations to David Guiney, recipient of the 2007 Sequoia Award for his leadership role in training interpreters and their partners in interpretive media skills. The award was presented by NPS Chief of Interpretation Corky Mayo at the National Interpreter's Workshop in Wichita, Kansas in November 2007.

The Sequoia Award recognizes individuals whose efforts have had a sustained, positive impact on the profession of interpretation. In bestowing the award, Mayo commended Guiney's leadership in "helping park staffs help themselves" by training NPS employees and others in interpretive media skills. "All of your work," said Mayo, "has created a range of employee development opportunities which has led to improved media development knowledge throughout the Service and in other federal and state agencies."

Mayo also noted Guiney's work in developing the *Museum Exhibit Planner*: "By providing a database system for organizing, tracking, and managing all of the content information in an exhibit project, your *Museum Exhibit Planner* has improved the quality, accuracy, and effectiveness of interpretive exhibits throughout the NPS."

David Guiney (center) with Chris Jarvi (Associate Director, Partnerships & Visitor Services) and Diane Chalfant (Assistant Associate Director, Partnerships & Visitor Services). (Photo by Mark Southern)

Map Starter Files

HFC Helps Jump-Start the Map Creation Process

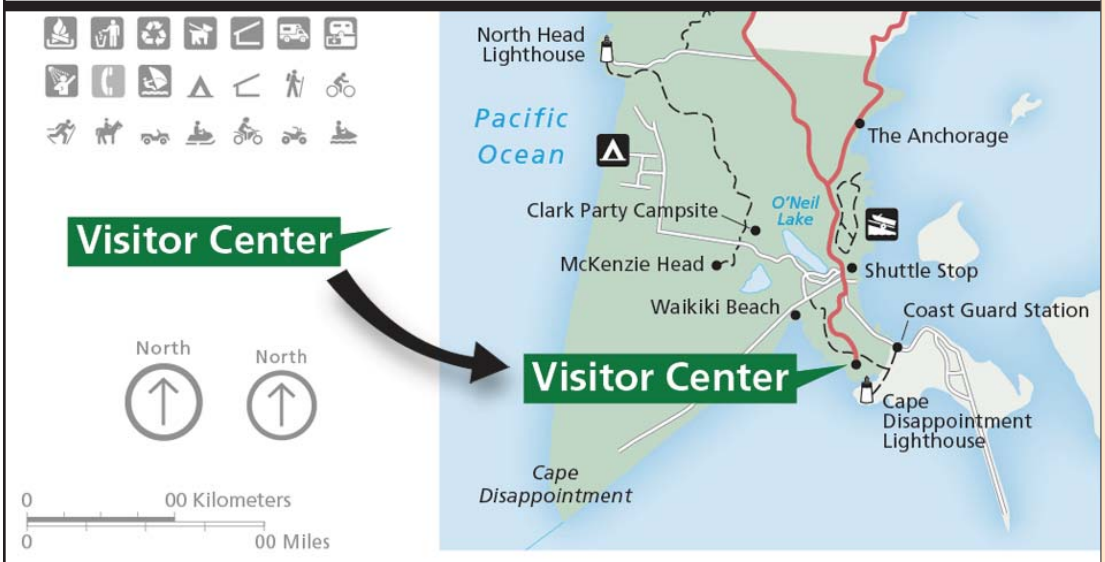
Park maps produced by Harpers Ferry Center are now faster to make thanks to new Map Starter Files that semi-automate the map-making process. The Map Starter Files, available in Adobe Illustrator CS format, come with labels, symbols, lines, and area colors—all the ingredients of a standard HFC map—on organized layers ready for use. Styles assigned to each layer further automate the map creation process.

As the name suggests, Map Starter Files significantly reduce the time needed to prepare basic maps developed by NPS staff or by contractors. Rather than writing pages of tedious instructions for contractors on how to design and produce a park map for an exhibit, wayside, or publication, for instance, a starter file contains all the necessary information for a contractor to complete the task—without the inevitable ambiguity that occurs when describing an inherently graphical product in a typical scope of work.

Assigning styles to layers makes HFC's cartographic standards instantly available to all mapmakers. For example, creating a dashed hiking trail is as easy as drawing the route on the trail layer with the line tool. The trail will instantly appear as a familiar black dashed line. Drawing a line on the stream layer results in a solid blue drainage, drawing a rail line on the railroad layer results in the familiar cross-hatched railroad tracks, and so forth.

Besides increasing cartographic efficiency, Map Starter Files free up time to devote to other important cartographic tasks. These include tailoring the content of maps to individual park needs and types of media, checking for accuracy, and using the templates as a starting point for creating even more refined map designs.

Map Starter Files are available on the HFC website at *www.nps.gov/hfc/carto/starter-maps.htm*.



Standard elements are embedded in Map Starter Files and can be dragged and dropped onto a map.

Map Symbols & Patterns

Harpers Ferry Center has produced new map symbols and patterns for National Park Service maps. The "Map Symbols" set includes recreation pictographs, north arrows, bar scales, road shields, etc. The "Other Symbols" set includes pictographs for accessibility, winter recreation, water recreation, etc. "Map Patterns" include lava, reef, sand, swamp, and tree patterns.

The map symbol files are now available in Adobe Illustrator CS2 format, TrueType format, and as ESRI styles for use by the GIS community. Map patterns can be accessed as a swatch library in Adobe Illustrator CS or later.

The map symbols and patterns files are available on the HFC website at *www.nps.gov/hfc/carto/map-symbols.htm*.

To request adding new symbols to the set, please contact HFC cartographer Tom Patterson (phone: 304-535-6020; email: Tom_Patterson@nps.gov). This symbol set will periodically be updated.

Sample NPS map symbols.

HFC Publishes New Wayside Exhibit Grids

Version 2.5 of the wayside exhibit grids are now available on the Harpers Ferry Center website. These grids provide a digital framework for creating wayside production files, are furnished in a variety of sizes, and comply with the NPS UniGuide Sign Program.

Grid Requirements:

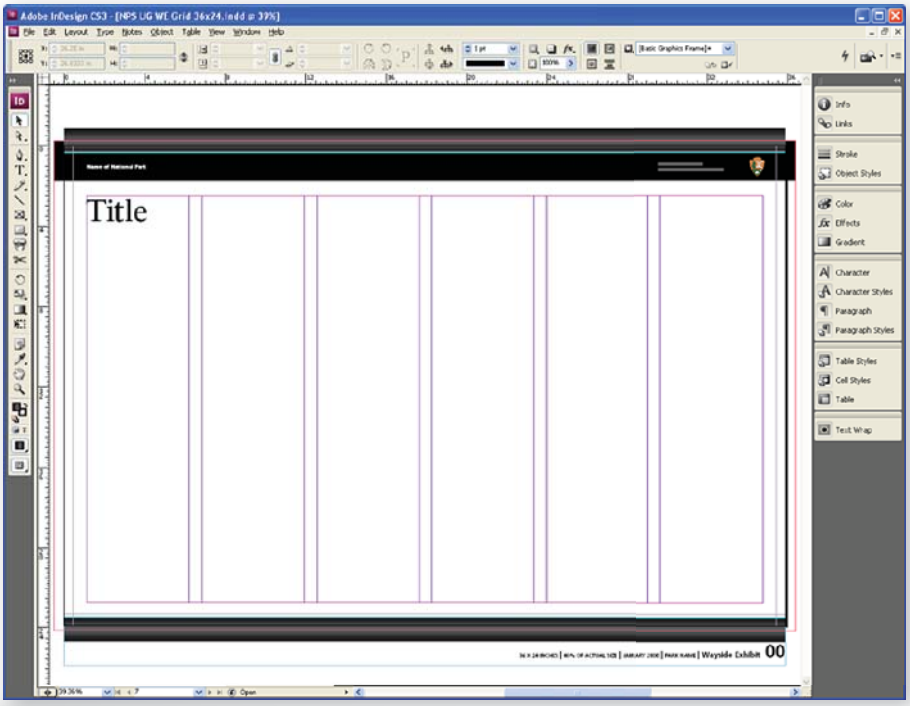
- Adobe InDesign CS3 (PC-Windows or MacOS).
- NPS approved OpenType® fonts NPS Rawlinson OT and Adobe Frutiger Std.

New to Wayside Exhibit Grids ver. 2.5:

- NPS Arrowhead is now full color and 150% larger; black band is also larger.
- New margins on all sides. Grids are now fully compatible with both NPS UniGuide bases and legacy full-frame "Hopewell" bases.
- All former metric units throughout the grid have been completely updated to common inch units including those for leading, baseline grid, gutter, and margins.
- More realistic looking simulated capture rail.
- New guides layer for legacy full-frame bases. Guides display where frame overlap will occur.
- Updated built-in auto date for information tag (no need for the auto date script in earlier versions)
- Expanded paragraph styles including styles for reverse text and quotes.
- New 18 x 12, 30 x 20, and Bulletin Case grids.

Wayside Exhibit Grids are available on the HFC website at *www.nps.gov/hfc/products/waysides/way-grids.htm*. Remember that all dimensions listed for the grids are nominal only. For exact dimensions, either select "file info" in InDesign for each grid or retrieve the "Wayside Exhibit Grid Dimensions" PDF file from the website.

Below: *Screenshot of a 36x24 InDesign wayside exhibit grid, and a wayside panel produced for Minidoka Internment National Monument based on this grid.*

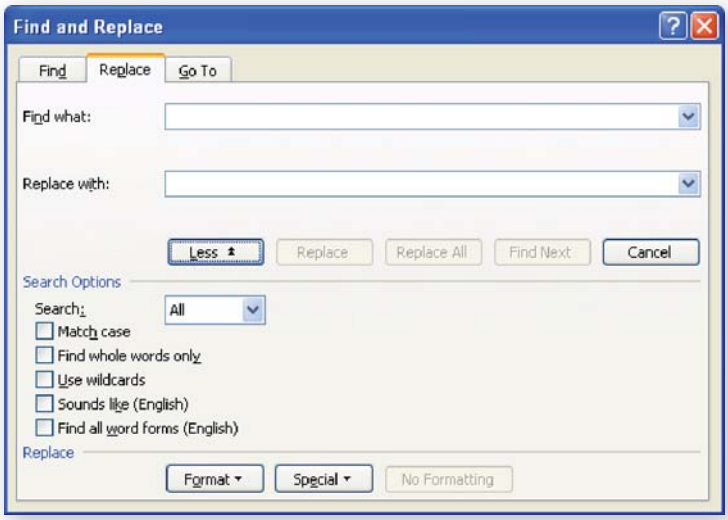


Software Tips & Tools

Tips and tools to speed your work in commonly used software applications

Finding and Replacing Fonts in a Microsoft Word Document

Here's a relatively quick way to globally replace all instances of the old Type 1 NPS approved fonts with the new OpenType NPS approved fonts in your Microsoft Word documents. This is particularly useful for large Word documents that are comprised of multiple pages and complex font formatting. (*To learn more about the OpenType fonts, see the March 2006 issue of **HFC onMedia***)



This solution is for both **Word 2003** and **Word 2007** on Windows XP computers where the Type 1 versions of **NPSRawlinson** and **Frutiger** have been removed and replaced with the OpenType versions of **NPSRawlinsonOT** and **Frutiger LT Std**.

1. Open your Word document that contains the old Type 1 versions of *NPSRawlinson* and *Frutiger*.

Note: There were originally eight distinct Type 1 NPSRawlinson fonts and three distinct Type 1 Frutiger fonts displayed in Word's font list. Here's the list of Type 1 fonts—and their new OpenType versions:

Type 1 font name	OpenType font name
NPSRawlinson	NPSRawlinsonOTOld
NPSRawlinsonTwo	NPSRawlinsonOTTwoOld
NPSRawlinsonCd	*no "oldstyle" equivalent*
NPSRawlinsonCdT	NPSRawlinsonOTCn
NPSRawlinsonT	NPSRawlinsonOT
NPSRawlinsonTwoT	NPSRawlinsonOTTwo
NPSRawlinsonTwoCd	*no "oldstyle" equivalent*
NPSRawlinsonTwoCdT	NPSRawlinsonOTTwoCd
Frutiger 45 Light	Frutiger LT Std 45 Light
Frutiger 55 Roman	Frutiger LT Std 55 Roman
Frutiger 95 UltraBlack	Frutiger LT Std 95 UltraBlack

If you formatted your original Word document with more than one of these Type 1 fonts, you will have to perform the **Find and Replace** process described below for each Type 1 font version displayed on the adjacent list.

2. Word 2003: To replace all instances of *NPSRawlinson* in your document with *NPSRawlinsonOTOld*, select **Edit > Replace...** and then select the **More** button at the bottom of the **Find and Replace** dialog box to get the above dialog box.

Word 2007: To replace all instances of *NPSRawlinson* in your document with *NPSRawlinsonOTOld*, on the **Home** ribbon select **Replace** from the **Editing** group on the far right. Select the **More** button at the bottom of the **Find and Replace** dialog box to get the above dialog box.

Graphics Script Simplifies Work in Adobe InDesign

HFC wayside exhibit designer Chad Beale, who typically spends several hours managing image files for his park projects, recently started using a custom graphics script for Adobe InDesign.

Because the images Beale places in his InDesign files are constantly swapped, rescaled or cropped as reviewers make changes and select new graphics, it's a major chore to prepare production files when the final designs are approved. The production files require high-resolution scans, but most of the placed images are low-resolution "for position only" scans or scans that have been scaled or manipulated beyond their optimal resolution.

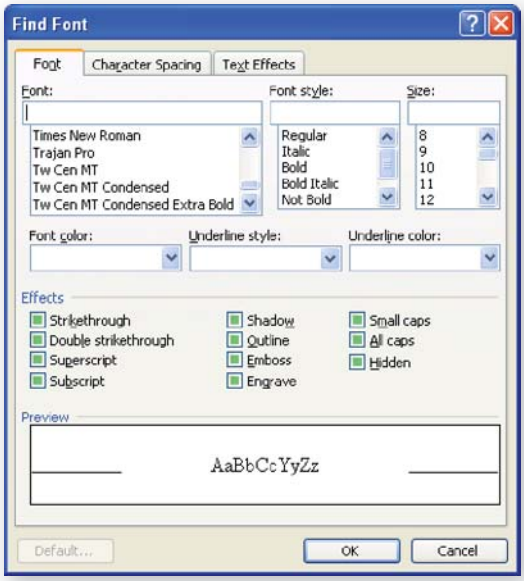
In the past, Beale had to inspect each image to ascertain the actual image resolution and dimensions—a laborious, time consuming job. So he hired a programmer he learned about through an Adobe Support Forum to write a script that automates the process.

Beale now launches the "image info reporter" script from a

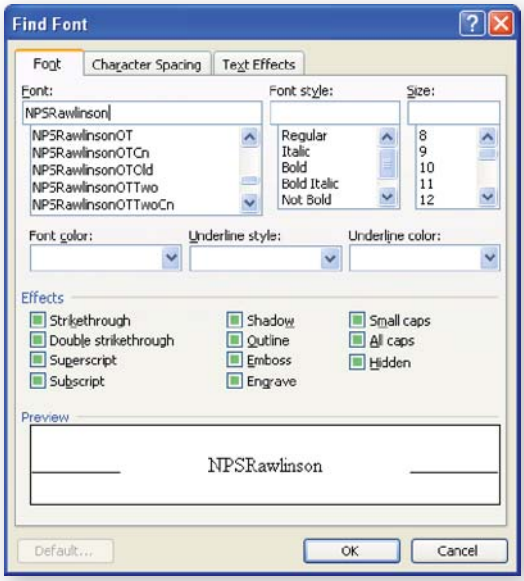
continued on next page

From this point on, the dialog boxes and instructions are identical for both Word 2003 and Word 2007.

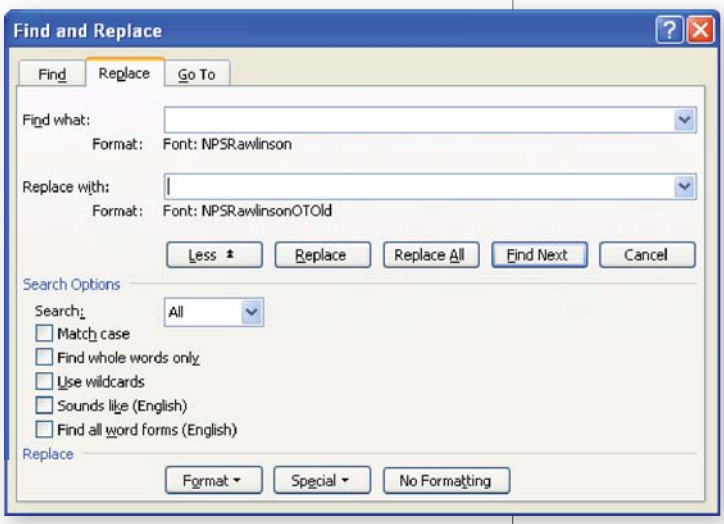
3. Click in the "Find what" field, select the **Format** button at the bottom, and then select **Font...** to get the **Find Font** dialog box:



4. Now, rather than selecting the font *NPSRawlinson* from the font list (which won't appear on the list since it's no longer installed on your computer), type into the "Font" box *NPSRawlinson* (as shown below), and choose the **OK** button.



5. Next, tab down to the "Replace with" field, select **Format** at the bottom, and then select **Font...** to get the **Replace Font** dialog box. Select *NPSRawlinsonOTOld* (or *NPSRawlinsonOT* if you don't want to keep old style character formatting), and choose the **OK** button. Your **Find and Replace** dialog box should now look like this (with nothing in either the "Find what" or "Replace with" fields, but with your font formatting choices appearing just below each field).



Select the **Replace All** button and your document will instantly be updated with the new font.

Repeat this process for any other NPS Type 1 fonts you want to update to their new OpenType versions. The font metrics for both the PostScript Type 1 and OpenType versions of both NPS Rawlinson and Adobe Frutiger are identical, so the type layout of your Microsoft Word documents should appear the same after you've updated the fonts.

Thanks to John Warren at Gateway National Recreation Area for helping us discover this shortcut.

Continued from Page 9

simple dialog box (*see bottom*) to retrieve a report that shows image size (*bytes*) and resolution (*pixels per inch*)—plus horizontal and vertical scaling and cropping—for every image in his InDesign file. The script also has a batch feature, so Beale can generate a report for multiple files. The script even includes a scaling factor to accommodate designers who work on very large graphic panels at 25% or 50% of actual size in their Adobe InDesign files.

Beale typically exports the image report to a Excel spreadsheet, which he shares with HFC graphics acquisition staff. This helps speed the purchase of stock images, and ensures that vendors furnish final graphics at the exact size and resolution required.

The script is licensed for use by National Park Service employees only. If you manage lots of image files in Adobe InDesign, and think this script might speed your own work, contact Chad Beale to obtain a copy of the "image info reporter" script (Chad_Beale@nps.gov).